

(h) A fume hood, biological safety cabinet, glove box, or equivalent engineering control equipped with HEPA filters and with charcoal filters if volatile materials are being used.

## Subpart H—Engineering Controls

### § 627.49 Introduction.

As required by the OSHA and recommended by the American Industrial Hygiene Association (AIHA) and the CDC, engineering controls and proper microbiological techniques are the primary means of protecting personnel who work with potentially hazardous biological materials. In situations of potentially higher hazard, these engineering controls are supplemented by personal protective clothing and equipment. Thus, the engineering controls discussed in this chapter will be the primary means of personnel and environmental protection when working with etiologic agents. Because of the importance of these engineering controls, this chapter contains not only requirements for the engineering and construction of these controls, but also requirements for their certification and continuous satisfactory performance. These will be described for each engineering control.

### § 627.50 Class I biological safety cabinet.

(a) *Description.* The Class I biological safety cabinet (figure H-I in appendix F to this part) is a ventilated cabinet for personnel protection only. The cabinet provides an uncirculated inward flow of air away from the operator. The exhaust is passed through a HEPA filter. It may be discharged into the laboratory or vented out of the laboratory and dispersed away from occupied spaces or air intakes. When the exhaust is recirculated in a BL-2 or BL-3 facility, the cabinet must be tested and certified annually. In a BL-4 facility, if the exhaust is recirculated, the cabinet must be tested and certified semiannually.

(b) *Uses.* These cabinets are used if personnel protection against the microorganisms is required; for modest quantities of volatile, toxic, or radioactive chemicals (in concentrations and quantities associated with biological

systems) if vented to the outside; and when sterility is not required. They are commonly used for housing tabletop centrifuges, in the necropsy of small animals, and for changing animal bedding.

(c) *Prohibitions.* This class of cabinet is not to be used when sterility must be maintained. In addition, volatile, toxic, or radioactive materials can not be used in this class of cabinet when the exhaust air is not exhausted to the exterior.

(d) *Certifications and requirements.* (1) The inward air velocity on these cabinets will be an average of 100 plus or minus 20 linear feet per minute (lfpm). Each cabinet must be certified before use and semiannually thereafter by a face velocity test. Additionally, smoke tests will be performed annually to verify containment.

(2) The exhaust system will have a HEPA filter, which will be tested initially upon installation, after repair or replacement, and every 2 years thereafter (except when required more often). Filters will be certified to be 99.97 percent effective in capturing particulate matter by a leakage test using mineral oil or other appropriate aerosol dispersed as 0.3 micron droplets.

### § 627.51 Class II biological safety cabinet.

All Class II biological safety cabinets (figure H-II in appendix F to this part) are ventilated cabinets for personnel and product protection, having an open front with inward air flow for personnel protection.

(a) *Operating standards.* (1) All of these cabinets must conform and be certified to meet National Sanitation Foundation (NSF) Standard No. 49 revised, June 1987, for the applicable type of cabinet.

(2) After installation and before use, and annually thereafter, the cabinets will be tested in accordance with NSF Standard No. 49 (latest revision June 1987) as follows:

- (i) Primary (required) tests—
  - (A) Velocity profile test.
  - (B) Work access opening airflow (face velocity) test.
  - (C) HEPA filter leak test.